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Non-DII COE Installation Procedures (IP) for the Imagery Database (MDIMG) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database

Document Version 4.1

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1 SCOPE

1.1 Identification

These Installation Procedures (IP) describe a non-Defense Information Infrastructure (DII) Common Operating Environment (COE) installation of the Imagery Database (MDIMG) segment, Version 4.1 series, of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database. The MDIMG is a DII COE *shared database* segment for the storage of imagery products. This software is designed to run under the following configurations:

- A Sun computer running Solaris 2.6 without a DII COE system.
- DII COE release 3.1 on a Hewlett-Packard computer running HP-UX 10.20.

The instructions herein describe only the non-DII COE Solaris installation process.

1.2 System Overview

The software described in this document forms a portion of the METOC Database component of the TESS(NC) Program (Navy Integrated Tactical Environmental Subsystem (NITES) Version I). On 29 October 1996, the Oceanographer of the Navy issued a TESS Program Policy statement in letter 3140 Serial 961/6U570953, modifying the Program by calling for five seamless software versions that are DII COE compliant, preferably to level 5.

The five versions are:

- NITES Version I — The local data fusion center and principal METOC analysis and forecast system (TESS(NC))
- NITES Version II — The subsystem on the Joint Maritime Command Information System (JMCIS) or Global Command and Control System (GCCS) (NITES/Joint METOC Segment (JMS))
- NITES Version III — The unclassified aviation forecast, briefing, and display subsystem tailored to Naval METOC shore activities (currently satisfied by the Meteorological Integrated Data Display System (MIDDS))

- NITES Version IV — The Portable subsystem composed of independent PCs/workstations and modules for forecaster, satellite, communications, and Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance (IC4ISR) functions (currently the Interim Mobile Oceanographic Support System (IMOSS))
- NITES Version V — Foreign Military Sales (currently satisfied by the Allied Environmental Support System (AESS))

NITES I acquires and assimilates various METOC data for use by US Navy and Marine Corps weather forecasters and tactical planners. NITES I provides these users with METOC data, products, and applications necessary to support the warfighter in tactical operations and decision making. NITES I provides METOC data and products to NITES I and II applications, as well as non-TESS(NC) systems requiring METOC data, in a heterogeneous, networked computing environment.

The TESS(NC) Concept of Operations and system architecture require that the METOC Database be distributed both in terms of application access to METOC data and products and in terms of physical location of the data repositories. The organizational structure of the database is influenced by these requirements, and the components of this distributed database are described below.

In accordance with DII COE database concepts, the METOC Database is composed of six DII COE-compliant *shared database* segments. Associated with each shared database segment is an Application Program Interface (API) segment. The segments are arranged by data type as follows:

Data Type	**Data Segment**	**API Segment**
Grid Fields	MDGRID	MAGRID
Latitude-Longitude-Time (LLT) Observations	MDLLT	MALLT
Textual Observations and Bulletins	MDTXT	MATXT
Remotely Sensed Data	MDREM	MAREM
Imagery	MDIMG	MAIMG
Climatology Data	MDCLIM	MACLIM

A typical client-server installation is depicted in Figure 1-1. This shows the shared database segments residing on a DII COE database server, with a NITES I or II client machine hosting the API segments. Communication between API segments and shared database segments is accomplished over the network using ANSI-standard Structured Query Language (SQL).

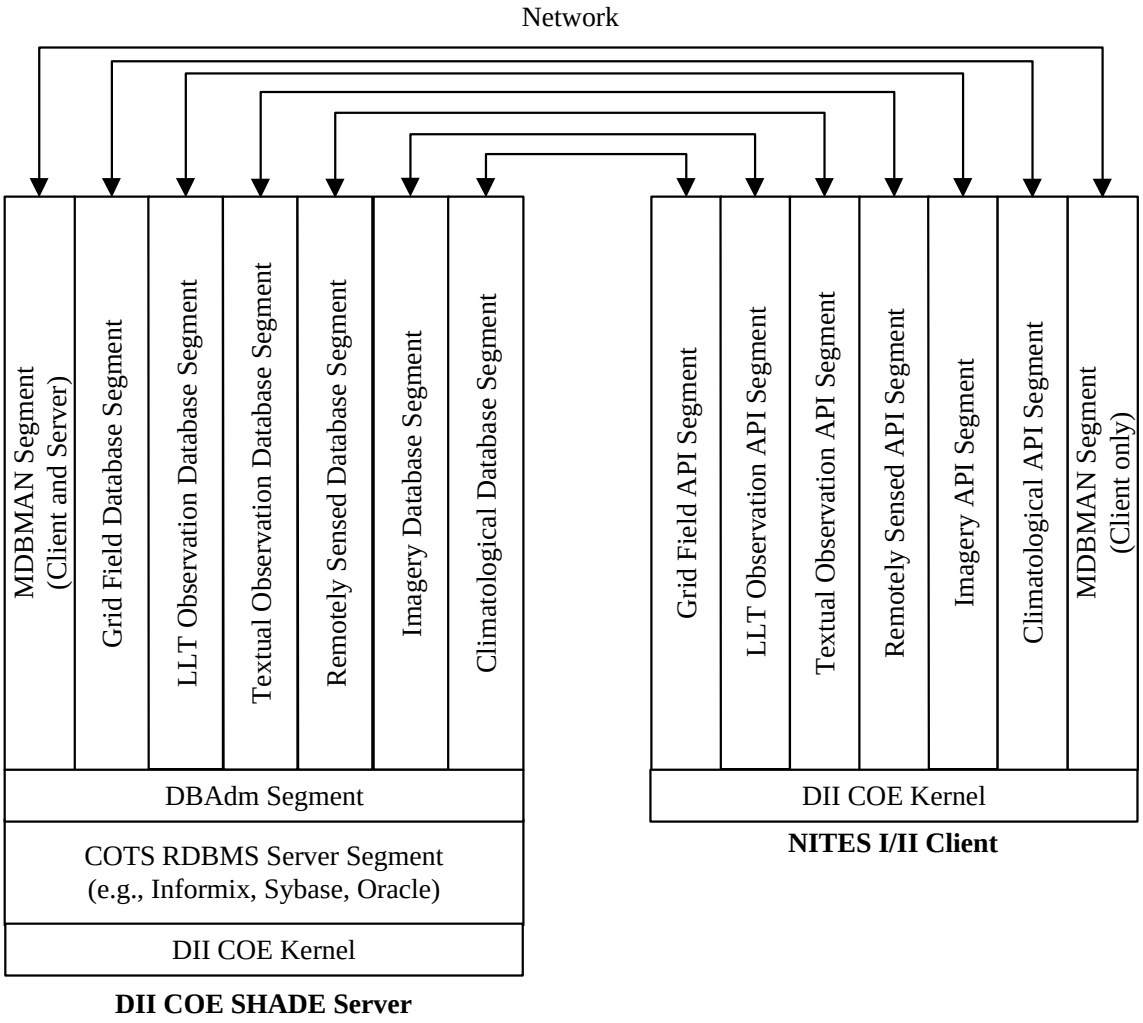

Figure 1-1. TESS(NC) METOC Database Conceptual Organization

The MDIMG segment deals with imagery products. Imagery products can be associated with a specific geographic point/area, as well as time. A number of different image formats are supported. They are NITF, MIF, GIF, TIFF, BMP, JPEG, XWD, XBM, PBM, MPEG, and Other.

2 REFERENCED DOCUMENTS

2.1 Government Documents

STANDARDS

MIL-STD-498 5 December 1994	*Software Development and Documentation*

SPECIFICATIONS

Unnumbered 5 December 1997	*Performance Specification (PS) for the Tactical Environmental Support System/Next Century TESS(3)/NC (AN/UMK-3)*
Unnumbered 30 September 1997	*Software Requirements Specification for the Tactical Environmental Support System/Next Century [TESS(3)/NC] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC

OTHER DOCUMENTS

Unnumbered 2 January 1996	*GRIB (Edition 1)* *The WMO Format for the Storage of Weather Product Information and the Exchange of Weather Product Messages in Gridded Binary Form* U.S. Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Centers for Environmental Prediction Clifford H. Dey NCEP Central Operations
Unnumbered 30 September 1997	*Database Design Description for the Tactical Environmental Support System/Next Century [TESS(3)/NC)] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC

DII.COE.DocReqs-5 29 April 1997	*Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer Documentation Requirements, Version 1.0*
ipd4200maimgrmTES-10 9 October 1998	*Application Program Interface Reference Manual (APIRM) for the METOC Imagery API (MAIMG) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*
ipd4200maimgpmTES-10 9 October 1998	*Programming Manual (PM) for the METOC Imagery API (MAIMG) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*

2.2 Non-Government Documents

World Meteorological Organization, Geneva, Switzerland

WMO-306	*Manual On Codes*

3 SYSTEM ENVIRONMENT

3.1 System Requirements

3.1.1 Hardware Requirements

The MDIMG software is hosted on a Sun Workstation.

The following configurations are recommended:

RAM: 128 MB minimum, 192 MB optimum
Disk Space: 2 GB
Swap Space: 300 MB

3.1.2 Operating System Requirements

Solaris 2.6

3.2 System and Site Preparations

3.2.1 System Configuration

The following software must be properly installed prior to loading the MDIMG software:

- Appropriate operating system (as described above),
- Informix On-Line Dynamic Server 7.24

3.2.2 Operating System Preparation

Information needed to prepare the operating system is found in Solaris-supplied documentation.

3.2.3 Tape/Disk Preparation

The MDIMG software is delivered on a 4-mm DAT cartridge for the Sun Workstation hardware environment.

4 INSTALLATION INSTRUCTIONS

MDIMG is a database component of the TESS(NC) METOC Database Computer Software Configuration Item (CSCI). The following procedures describe the installation of the MDIMG software.

4.1 Installation

NOTE: Prior to segment installation, ensure that no existing MDIMG software is already installed on the target platform. If so, run the /usr/local/METOCAPPS_INFO/uninstall.MDIMG script to remove the existing version. The operator must be root to run the uninstall script.

4.1.1 Media Booting Procedures for Sun Workstation Systems

To prepare a tape for installation:

1. Insert the tape in the DAT drive.

2. Log in as root.

3. Extract the installation script from the tape using tar –xvf <tape device name>

4.1.2 Installation Procedures for Sun Workstation Systems

To install the MDIMG software:

1. First ensure that the Informix online servers are running (ps –ef | grep oninit).

2. Make sure the INFORMIXSERVER and INFORMIXDIR environmental variables are set; if not, set them now.

   Ex. setenv INFORMIXDIR /opt/informix

   setenv INFORMIXSERVER online_coe

3. Invoke the extracted MDIMG install script

   ./install.MDIMG

4. Enter the NO-REWIND tape device name, or press the ENTER key to select the default value, displayed in the braces. The default value is /dev/rmt/0m.

5. After the tape device name is entered, a description of the segment to be installed is displayed. If this is the correct segment, enter 'y' or press the ENTER key to accept the default value. If the description of the segment is not the segment to be installed, enter 'n', and the installation procedure is stopped. The default value is 'y'.

6. If 'y' was entered in the above step, you will need to specify the path where the segment is to be installed. Remember to end the path with the name of the segment in capital letters (e.g., /home/MDIMG). The default value is /h/MDIMG.

7. If the directory specified above does not exist, the installation will create it for you. If you want the directory created, enter 'y' at the prompt, or select the default by pressing the ENTER key. If you don't want the installation script to create the directory, enter 'n' at the prompt. This will stop the installation process, and you will have to create the directory manually.

8. Once the directory has been created, you will be prompted to continue with the installation. If you wish to continue, either enter 'y' or select the default value by pressing the ENTER key. If you do not wish to continue the installation, enter 'n' at the prompt.

9. A prompt appears asking "Would you like the installer to set up the table space and BLOB space?" If 'y' is entered, proceed to the next step. If 'n' is entered, another prompt appears stating "Warning: The mdimg_db table space must be already created to continue successful creation of the database. Do you wish to continue [Y/N]?" This is only used if you have already created the database and Binary Large Object (BLOB) space by using the Informix tools. This option will only load the tables into the already created database. Once complete, skip to Step 13.

> **NOTE:** When the table space and BLOB space are created, they must be named as follows:
>
> Table Space: mdimg_db
> BLOB Space: mdimg_blob
> mdimg_blob2

10. A prompt appears asking "Would you like to customize database size settings?" If NO is entered, you will be prompted for the database size in MB. Enter the size of the database, and 1/10 of that will be dedicated to the tables and 9/10 to blob space. The blob page size will be set to 16 KB. If YES is entered, the next prompt is for the table size of the database. Enter the appropriate value. The next prompt is for the blob space of the database. Enter the appropriate value. The final prompt is for the blob page size (in KB). Enter the appropriate value.

11. A prompt appears asking you to "Enter Pathname (Disk Partition) where the database spaces are to reside." The informix idat files needed to set up the database will appear

under a directory called “data_store” in the path you specified. If the specified path is “/home”, then the idat files needed appear under the path “/home/data_store”.

12. The operator will be given periodic status messages requiring a response with the “enter” key.

13. The script will proceed to install the segment to the directory that was specified. While the script is finishing up, it will create a new directory under /usr/local called METOCAPPS_INFO. This is where it will place two files, an uninstall script and an info file about the segment.

14. Upon completion, a message indicating status will be displayed. This completes the installation of the MDIMG segment.

4.2 Installation of Upgrades

Installation of upgrades will generally follow the same procedures listed above.

4.3 Installation Verification

Verification of proper installation may be done by using the informix dbaccess tool and selecting the mdimg_db database for connection.

4.4 Initializing the Software

This section is tailored out. No initialization of the software is required.

4.5 List of Changes and Enhancements

This section is tailored out. Discussion of MDIMG features may be found in the MAIMG API Reference Manual and Programming Manual, cited in Section 2.

4.6 Important Considerations

This section is tailored out.

5 NOTES

5.1 Glossary of Acronyms

AESS	Allied Environmental Support System
API	Application Program Interface
APIRM	API Reference Manual
BLOB	Binary Large Object
COE	Common Operating Environment
CSCI	Computer Software Configuration Item
DII	Defense Information Infrastructure
FNMOC	Fleet Numerical Meteorology and Oceanography Center
GCCS	Global Command and Control System
IC4ISR	Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance
IMOSS	Interim Mobil Oceanographic Support System
IP	Installation Procedures
JMCIS	Joint Maritime Command Information System
JMS	Joint METOC Segment
LLT	Latitude-Longitude-Time
MAIMG	Imagery API Segment of the TESS/NC METOC Database
MDIMG	Imagery Database Segment of the TESS/NC METOC Database
METOC	Meteorology and Oceanography
MIDDS	Meteorological Integrated Data Display System
NITES	Navy Integrated Tactical Environmental Subsystem

PM	Programming Manual
PS	Performance Specification
SQL	Structured Query Language
TESS(NC)	Tactical Environmental Support System Next Century